

IN THE CLAIMS:

Please amend Claims 1, 2, 5, 6, 12 to 21, 26, 27, 32 to 44, 46, 47, 53 to 56, 57, 59, 62, 64 to 67, 69 to 72, 74, 75, 77, 84 to 86, 89, 91, 92 and 94 to 98, and add new Claims 105 to 110, as shown below.

1. (Currently Amended) A method of transmitting data using multicarrier-type modulation, comprising the steps of:

extracting a first signal from received data, where said first signal represents transmission quality of each sub-carrier observed and transmitted by a remote device;

allocating transmission data to the sub-carriers in an order, wherein the order is based on an importance of the transmission data and the first signal[[,]]; and

inserting a second signal in transmission data, wherein said second signal represents the order in which the transmission data are allocated to the sub-carriers based on the importance of the transmission data and the first signal.

2. (Currently Amended) A method of receiving data using multicarrier-type modulation, comprising the steps of:

analyzing a transmission channel so as to supply a signal representing transmission quality of each sub-carriers in a return direction;

extracting received data of a signal representing an order in which the transmission data are arranged by a transmission device on the sub-carriers; and

forming the received data according to the signal representing the order in which the transmission data are arranged by the transmission device.

3. (Previously Presented) A method according to claim 2, wherein the received data are serialized in said forming step according to the signal representing the order.

4. (Previously Presented) A device for transmitting data to a remote device, comprising:

allocating means for allocating transmission data to sub-carriers in an order, wherein the order is based on an importance of the transmission data and a transmission quality of the sub-carriers; and

inserting means for inserting in the transmission data of a signal representing the order.

5. (Currently Amended) A device according to claim 4, wherein said the transmission quality of the sub-carriers is observed and transmitted by a reception device.

6. (Currently Amended) Device according to Claim 4, further comprising:
premodulator means, said premodulator means comprising:
a presenting means for presenting data to be transmitted according to an importance and a transmission quality observed in each subcarrier in a direction of transmission, to different inputs of a modulator, wherein each input corresponds to a subcarrier,

a first inserting means for inserting in the data to be transmitted a signal representing the transmission quality observed in each subcarrier in a direction opposite the direction of transmission, and

a second inserting means for inserting, in the data, a signal representing an order in which the data to be transmitted are arranged at an input of the premodulator, the device further comprising:

a post-demodulator means, said post-demodulator means comprising:
a first extracting means for extracting, from a signal issuing from a demodulator, a frequency classification data signal representing a transmission quality observed by remote device for each subcarrier in the direction of transmission, wherein said signal is generated by the remote device,

an analyzing means for analyzing a transmission channel so as to supply a signal representing the transmission quality of each subcarrier in the direction opposite the direction of transmission,

a second extracting means for extracting, from the signal issuing from the demodulator, a signal representing the order in which the different data to be transmitted are arranged at the input of the premodulator of the remote device, and

a serializing means for serializing the data received as a function of a data position signal representing an order in which data to be transmitted are arranged at the input of the premodulator of the remote device.

7. (Previously Presented) Device according to Claim 6, wherein the premodulator means further comprises a data classification unit and a frequency allocation unit.

8. (Previously Presented) Device according to Claim 7, wherein the presenting means generates a data significance signal representing the importance of each data item supplied by a data source.

9. (Previously Presented) Device according to Claim 7, wherein said frequency allocation unit further comprises:

first generating means for generating a data allocation command signal for determining the distribution of the data over the different subcarriers from data, wherein the data includes the data significance signal and frequency classification data signals, and

second generating means for generating a signal representing an order in which the data to be transmitted are arranged at the input of the premodulator.

10. (Previously Presented) Device according to Claim 7, wherein the frequency allocation unit further comprises:

storing means for storing the information contained in the frequency classification data signal, data significance and storage signals for the frequency allocation unit to read,

first classification means for classifying and storing the subcarriers by order of interference in a classification table,

second classification means for classifying and storing the data to be transmitted in order of an importance, using information contained in the data significance signal,

first transmission means for transmitting a signal relating to relative positioning of data, to the first inserting means,

second transmission means for transmitting a data allocation command signal to a data allocation unit, wherein said data allocation command signal is composed of a pair of data, wherein each pair of data comprises output of the first classification means and the second classification means,

a testing means for testing whether the data allocation command signal has been completely transmitted.

11. (Previously Presented) Device according to Claim 7, wherein data allocation unit further comprises a transfer means for transferring data supplied by a data source to a subcarrier denoted by the frequency allocation unit in a data allocation command signal .

12. (Currently Amended) Device according to Claim 5 ~~any one of Claims 5 to 11~~, further comprising:

a calculation unit,

a temporary data storage unit,

a program storage unit,

a character entry means,

an image reproduction means, and
an input-output means.

13. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a telephone.

14. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a photographic apparatus.

15. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a printer.

16. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a scanner.

17. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a camera.

18. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a computer.

19. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a facsimile machine.

20. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is a television receiver.

21. (Currently Amended) Device according to Claim 5 any one of Claims 5 to 11, wherein said device is an audio/video player.

22. (Cancelled)

23. (Cancelled)

24. (Previously Presented) Method for transmitting data from a local device to a remote device via a transmission channel, the method comprising the steps of:
receiving data for transmission, from a data source;
extracting importance information corresponding to the data;
analyzing the importance information;
inserting a « Most Significant Data » flag and applying an algorithm that generates an Orthogonal Frequency Division Multiplex (OFDM) symbol after an addition of redundancy bits reduce a peak value of the signal, in a case where the data is highly important;
inserting a « Least Significant Data » flag and applying an algorithm that generates an OFDM symbol by using an inverse fast Fourier transform (IFFT) matrix modified so as to reduce a peak value of the signal, in a case where the data is not highly important;

transmitting the generated OFDM symbol, via a radiofrequency interface.

25. (Cancelled)

26. (Currently Amended) Method for receiving data transmitted by a remote device via a transmission channel to a reception device, comprising the steps of:

receiving [[a]] data at a radiofrequency receiver;

extracting importance information associated with received data,

analyzing the importance information;

generating a control signal representative of a type of demodulation to be applied, wherein if the data is considered to be highly significant, a demodulation favoring a minimum bit error is applied, and wherein if the data is considered to be less significant, a demodulation favoring a maximum data rate is applied; and

sending demodulated data to a destination.

27. (Currently Amended) Device for transmitting data to a remote device via a transmission channel, comprising:

a data source;

a radiofrequency interface;

two multi-carrier demodulators, wherein a first multi-carrier demodulator favors a minimum bit error rate, and wherein a second multi-carrier demodulator favors a maximum bit rate;

a plurality of multiplexers for selecting a modulator, and

an insertion unit for inserting into data an item of information corresponding to a chosen modulator, wherein a modulator is chosen according to an importance of data received from the data source, and wherein the importance of data received from the data source also affects operation of said plurality of multiplexers.

28. (Previously Presented) Device according to claim 27, wherein said insertion unit inserts an OFDM symbol prefix and a suffix into data for transmission ensuring synchronization of a receiver.

29. (Previously Presented) Device according to Claim 27 one of claims 27 to 28, further comprising:

- a computing unit,
- a unit for temporarily storing data,
- a program storage unit,
- a character acquisition means,
- image restoring means, and
- an input/output means.

30. (Previously Presented) Device for receiving data transmitted by a remote device via a transmission channel, comprising:

- a radiofrequency receiver;

two multi-carrier demodulators, wherein a first multi-carrier demodulator favors a minimum bit error rate and wherein a second multi-carrier demodulator favors a maximum data rate,

a plurality of multiplexers for selecting a demodulator, and
an extraction unit for extracting control data, such as a type of demodulator to use, and for generating a signal to command said plurality of multiplexers.

31. (Previously Presented) Device according to claim 30, further comprising:

a computing unit CPU,
a unit for temporarily storing data,
a program storage unit,
a character acquisition means,
an image restoring means, and
an input/output means.

32. (Currently Amended) Device according to Claim 27 any one of claims 27 to 31, wherein said device is a telephone.

33. (Currently Amended) Device according to Claim 27 any one of claims 27 to 31, wherein said device is a photographic apparatus.

34. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a printer.

35. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a scanner.

36. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a camera.

37. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a computer.

38. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a facsimile machine.

39. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is a television receiver.

40. (Currently Amended) Device according to Claim 27 any one of claims
27 to 31, wherein said device is an audio/video reader.

41. (Currently Amended) A method Method of managing information transmissions by radio between a base station and at least one peripheral station, comprising the steps of:

managing an acceptable error rate; and

allocating a number of carriers and a modulation to at least one radio communication channel allocated to a the transmission of information between the base station and the at least one peripheral station, in accordance with the acceptable error rate for a transmission of information between the base station and the at least one peripheral station, and

determining a number of carriers and a modulation in response to a required service quality, in terms of transmission error rate and transmission rate, for a given transmission of information between the base station and the at least one peripheral station; wherein the number of carriers and the modulation differ according to required service qualities:

42. (Currently Amended) A method Method according to Claim 41, wherein the number of carriers and a modulation are allocated to at least one communication channel in accordance with the acceptable error rate required service qualities are expressed in terms of transmission error rate threshold and variation in transmission rate acceptable for an information transmission.

43. (Currently Amended) A method Method according to Claim 41 or 42, wherein the step of allocating determining a number of carriers and a modulation is

performed during an information transmission between the base station and the at least one peripheral station.

44. (Currently Amended) A method Method according to Claim 41 or 43, wherein the step of allocating determining a number of carriers and a modulation is performed between two information transmissions between the base stations station and the at least one peripheral station.

45. (Previously Presented) Method according to Claim 41, further comprising a step of receiving at least one measurement of a transmission error rate on radio communication channel allocated to transmission of information between the base station and the at least one peripheral station.

46. (Currently Amended) A method Method according to Claim 45, further comprising the steps of:

analyzing said at least one measurement of the transmission error rate; and
comparing the result of the analyzing step with the acceptable error rate required service quality.

47. (Currently Amended) A method Method according to Claim 46, further comprising a step of determining a number of carriers and a modulation if the comparing step indicates that the acceptable error rate required service quality has not been met.

48. (Previously Presented) Method according to Claim 41, further including a step of determining a number of carriers to be allocated different from a number of carriers previously allocated to said at least one communication channel between the base station and the at last one peripheral station.

49. (Previously Presented) Method according to Claim 48, wherein the number of carriers to be allocated to said at least one communication channel between the base station and the at least one peripheral station is greater than a number of carriers that was allocated previously.

50. (Previously Presented) Method according to Claim 48, wherein the number of carriers to be allocated to said at least one communication channel between the base station and the at least one peripheral station is less than a number of carriers that was allocated previously.

51. (Previously Presented) Method according to Claim 49 further comprising the steps of:

determining a number of carriers to be allocated to a first communication channel between the base station and a first peripheral station which is greater than a number of carriers which was previously allocated to this first communication channel, and

determining a number of carriers to be allocated to a second communication channel between the base station and a second peripheral station which is less than a number of carriers which was previously allocated to this second communication channel,

in response to service qualities required for the transmission of information on communication channels in terms of transmission error rate and transmission rate.

52. (Previously Presented) Method according to Claim 41, wherein said method further includes a step of determining a modulation to be allocated to said at least one communication channel between the base station and the at least one peripheral station which is different from a modulation previously allocated.

53. (Currently Amended) Method according to ~~Claims~~ Claim 41, wherein a transmission by modulated carriers uses a technique of modulation by Orthogonal Frequency Division Multiplexing (OFDM).

54. (Currently Amended) A method ~~Method~~ of sending information over a radio communication channel, comprising including the steps of:

allocating a number of carriers and a modulation to information for transmitting over a radio communication channel[.]; and

sending the information in carriers modulated by the information, and

wherein reconfiguring the number of carriers and the modulation are allocated to the information in said allocating step in accordance with an acceptable as a function of required service qualities in terms of transmission error rate and transmission rate for an a given information transmission, wherein the number of carriers and the modulation differ according to the required service qualities.

55. (Currently Amended) A method Method according to Claim 54,
wherein the number of carriers and the modulation are allocated to the information in said
allocating step in accordance with the acceptable error rate and variation in the
transmission rate acceptable for said required service qualities are also expressed in terms
of transmission error rate threshold and variation in the transmission rate which are
acceptable for said information for transmission.

56. (Currently Amended) A method Method according to any one of Claim
54 or 55, wherein the allocating reconfiguring step is performed during an information
transmission.

57. (Currently Amended) A method Method according to Claim 54 or 55,
wherein the allocating reconfiguring step is performed between two information
transmissions.

58. (Previously Presented) Method according to Claim 54, further
including a step of sending a request to allocate a service quality in terms of transmission
rate and transmission error rate for an information transmission.

59. (Currently Amended) A method Method according to Claim 54, further
comprising a step of reconfiguring a number of carriers different from a number of carriers
previously allocated to the information in said allocating step wherein a number of carriers
reconfigured is different from a number of carriers previously allocated.

60. (Previously Presented) Method according to Claim 59, wherein a number of carriers reconfigured is greater than a number of carriers previously allocated.

61. (Previously Presented) Method according to Claim 59, wherein a number of carriers reconfigured is less than a number of carriers previously allocated.

62. (Currently Amended) A method Method according to Claim 54, further comprising a step of reconfiguring wherein a modulation reconfigured is different from a modulation previously allocated to the information in said allocating step.

63. (Previously Presented) Method according to Claim 54, wherein the sending step uses modulation by Orthogonal Frequency Division Multiplexing.

64. (Currently Amended) A method Method of receiving information coming from a radio communication channel, comprising the steps of:

receiving information sent in the form of carriers modulated by information[[],]; and

selecting the carriers and modulation allocated to the said information, and in accordance with acceptable error rate for an information transmission

reconfiguring a number of carriers and the modulation according to required service qualities in terms of transmission error rate and transmission rate for an information transmission, the number of carriers and the modulation reconfigured differing according to the required service qualities.

65. (Currently Amended) A method Method according to Claim 64,
wherein the carriers and the modulation are selected in said selecting step in accordance
with the acceptable error rate and variation in the transmission rate required service
qualities are expressed in terms of transmission error rate threshold and variation in the
transmission rate which are acceptable for said information transmission.

66. (Currently Amended) A method Method according to any one of
Claim[[s]] 64 or 65, wherein the selecting reconfiguring step is performed during an
information transmission.

67. (Currently Amended) A method Method according to any one of
Claim[[s]] 64 or 65, wherein the selecting reconfiguring step is performed between two
information transmissions.

68. (Previously Presented) Method according to Claim 64, further
comprising a step of measuring the transmission error rate on the radio communication
channel allocated to an information transmission.

69. (Currently Amended) A method Method according to Claim 64, further
comprising a step of reconfiguring wherein the number of carriers which are reconfigured
is different from a number of carriers allocated selected in said selecting step.

70. (Currently Amended) A method Method according to Claim 69,
wherein the number of carriers which are reconfigured is greater than a number of carriers
selected in said selecting step allocated.

71. (Currently Amended) A method Method according to Claim 69,
wherein the number of carriers which are reconfigured is less than a number of carriers
selected in said selecting step allocated.

72. (Currently Amended) A method Method according to Claim 64, further comprising a step of reconfiguring wherein the modulation is reconfigured different from the modulation allocated selected in said selecting step.

73. (Previously Presented) Method according to Claim 64, wherein receiving step receives carriers modulated by Orthogonal Frequency Division Multiplexing (OFDM).

74. (Currently Amended) A device Device for managing the information transmission[[s]] by radio between a base station and at least one peripheral station, said device comprising:

managing means for managing an acceptable error rate; and
allocating means for allocating a number of carriers and a modulation to at least one radio communication channel allocated to a transmission of information between

the base station and the at least one peripheral station, in accordance with the acceptable error rate for a transmission of information between the base station and the at least one peripheral station and

determining means for determining a number of carriers and a modulation in response to required service qualities, in terms of transmission error rate and transmission rate, for a given information transmission between the base station and the at least one peripheral station, the number of carriers and the modulation differing according to the required service qualities.

75. (Currently Amended) A device Device according to Claim 74, wherein said allocating means allocates the number of carriers and a modulation to at least one communication channel in accordance with the acceptable error rate and variation in transmission rate acceptable for the required service qualities are also expressed in terms of transmission error rate threshold and variation in a transmission rate which are acceptable for said information transmission.

76. (Previously Presented) Device according to Claim 74 any one of Claims 74 or 75, further comprising receiving means for receiving at least one measurement of transmission error rate.

77. (Currently Amended) A device Device according to Claim 76, further comprising:

analyzing means for analyzing the at least one measurement of transmission error rate; and

comparing means for comparing the output of the analyzing means with the acceptable error rate required service qualities.

78. (Previously Presented) Device according to Claim 74, further comprising determining means for determining a number of carriers to be allocated different from a number of carriers previously allocated to the at least one communication channel between the base station and the at least one peripheral station.

79. (Previously Presented) Device according to Claim 78, wherein the number of carriers to be allocated to the at least one communication channel between the base station and the at least one peripheral station is greater than the number of carriers allocated previously to the communication channel.

80. (Previously Presented) Device according to Claim 78, wherein the number of carriers allocated to said at least one communication channel between the base station and the at least one peripheral station is less than the number of carriers allocated previously to the communication channel.

81. (Previously Presented) Device according to Claim 80, further comprising:

first determining means for determining a number of carriers to be allocated to a first communication channel between the base station and a first peripheral station which is greater than that previously allocated to the first communication channel, and

second determining means for determining a number of carriers to be allocated to a second communication channel between the base station and a second peripheral station which is less than that previously allocated to the second communication channel, in response to service qualities required respectively for the transmission of information over the communication channel in terms of transmission error rate and transmission rate.

82. (Previously Presented) Device according to Claim 74, further comprising determining means for determining a modulation to be allocated to said at least one communication channel between the base station and the at least one peripheral station which is different from a modulation allocated previously.

83. (Previously Presented) Device according to Claim 74, wherein the transmission by modulated carriers ~~using~~ uses a technique of modulation known as Orthogonal Frequency Divisional Multiplexing (OFDM).

84. (Currently Amended) A device Device for sending information over a radio communication channel, comprising:

allocating means for allocating a number of carriers and a modulation to information for transmitting over the radio communication channel,

sending means for sending said information in the form of carriers modulated by said information,

wherein said allocating means allocates the number of carriers and the modulation to the information in accordance with an acceptable error rate for an information transmission and

reconfiguring means for reconfiguring the number of carriers and the modulation allocated to the information according to required service qualities, in terms of transmission error rate and transmission rate for a information transmission, the number of carriers and the modulation reconfigured differing according to the required service qualities.

85. (Currently Amended) A device Device according to Claim 84, wherein said allocating means allocates the number of carriers and the modulation to the information in accordance with the acceptable error rate the required service qualities are expressed in terms of transmission error rate threshold and variation in a transmission rate which are acceptable for an information transmission.

86. (Currently Amended) A device Device according to any one of Claims Claim 84 or 85, further comprising the reconfiguring means for reconfiguring the number of carriers different from a number of carriers previously allocated by said allocating means wherein the number of carriers reconfigured is different from a number of carriers previously allocated.

87. (Previously Presented) Device according to Claim 86, wherein the number of carriers reconfigured is greater than a number of carriers previously allocated.

88. (Previously Presented) Device according to Claim 86, wherein the number of carriers reconfigured is less than a number of carriers previously allocated.

89. (Currently Amended) Device according to Claim 84, wherein further comprising reconfiguring means for reconfiguring the modulation reconfigured is different from a modulation previously allocated by said allocating means.

90. (Previously Presented) Device according to Claim 84, wherein the information transmission uses a technique of Orthogonal Frequency Division Multipleing (OFDM).

91. (Currently Amended) A device Device for receiving information coming from a radio communication channel, comprising:

receiving means for receiving information sent in carriers modulated by the information, and

selecting means for selecting carriers and modulation allocated for the information, in accordance with acceptable error rate for an information transmission and reconfiguring means for reconfiguring the number of carriers and the modulation to be selected as a function of required service qualities, in terms of transmission error rate and transmission rate, for an information transmission, the number

of carriers and the modulation reconfigured differing according to the required service qualities.

92. (Currently Amended) Device according to Claim 91, wherein said selecting means selects the carriers and the modulation in accordance with the acceptable the required service qualities are also expressed in terms of transmission error rate threshold and variation in transmission rate which are acceptable for the said information transmission.

93. (Previously Presented) Device according to Claim 91 any one of Claims 91 or 92, further comprising measuring means for measuring the transmission error rate on a communication channel allocated to the information transmission.

94. (Currently Amended) A device Device according to Claim 91, further comprising reconfiguring means for reconfiguring the number of carriers different from a number of carriers previously selected by said selecting means wherein the number of carriers reconfigured is different from a number of carriers previously allocated.

95. (Currently Amended) A device Device according to Claim 94, wherein the number of carriers reconfigured is greater than a number of carriers previously selected by said selecting means allocated.

96. (Currently Amended) A device Device according to Claim 94, wherein the number of carriers reconfigured is less than a number of carriers previously selected by said selected means allocated.

97. (Currently Amended) Device according to Claim 91, wherein further comprising reconfiguring means for reconfiguring the modulation when reconfigured is different from a modulation that previously selected by said selecting means allocated.

98. (Currently Amended) Device according to Claim 53 any one of Claims 53 to 97, wherein transmission by modulated carriers uses a technique of modulation known as Orthogonal Frequency Division Multiplexing.

99 to 104. (Cancelled).

105. (New) A device according to Claim 91, wherein said selecting means selects the carriers and modulation in accordance with acceptable error rate and transmission rate.

106. (New) A method according to Claim 41, wherein the number of carriers and the modulation are allocated in said allocating step in accordance with the acceptable error rate and transmission rate.

107. (New) A method according to Claim 54, wherein the number of carriers and the modulation are allocated in said allocating step in accordance with the acceptable error rate and transmission rate.

108. (New) A method according to Claim 64, wherein the carriers and modulation are selected in said selecting step in accordance with the acceptable error rate and transmission rate.

109. (New) A device according to Claim 74, wherein said allocating means allocates the number of carriers and the modulation in accordance with the acceptable error rate and transmission rate.

110. (New) A device according to Claim 84, wherein said allocating means allocates the number of carriers and the modulation in accordance with the acceptable error rate and transmission rate.